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Bullying of Disabled and Non-Disabled High School Students: A Comparison Using the Maine Integrated Youth Health Survey

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The Maine Integrated Youth Health High School Survey (MIYHS) is a biennial survey of Maine students in grades 9-12. This study uses state-level data from the 2009 MIYHS to analyze and compare rates of reported bullying among disabled and non-disabled students. The analysis also accounts for location (on/off school grounds) or method of bullying (in person/online), disability status, and other demographic information provided by the survey, including gender, grade, race, and sexual orientation.

Keywords: bullying, schools, disability, school violence

The issue of bullying has gained national attention recently, especially in tragic cases where bullying has been linked to teenage suicide. National and state student surveys are capturing data on how many students experience bullying each year. National estimates of bullying prevalence vary, but one national survey indicates that in 2008-2009, 28% of students age 12-18 reported they were bullied at school in the past school year (DeVoe & Murphy, 2011).

One concern is whether certain groups of students, such as those self-reporting disabilities, are at greater risk for being bullied than other types of students. The research literature specifically examining this question in the United States is often limited to small studies in single schools or districts, but the few studies using research collected on a larger geographic basis, such as statewide, appears to indicate that the risk for being bullied is higher for disabled students. For example, Repetto et al. (2011) used the results of the Florida High School Exit Survey of graduating seniors to compare the high school experiences of students with and without disabilities in 40 Florida public school districts. The authors of the study found a number of significant differences in the perceptions of students with disabilities and their non-disabled peers, not least that students with self-reported disabilities were also more likely to report having been bullied or picked on in the course of their time in high school.

The Maine Integrated Youth Health High School Survey (MIYHS) represents an exceptional opportunity to conduct a more comprehensive statewide analysis specific to the relationship between disabled teens and experiences of bullying. The MIYHS is a biennial survey of Maine students in grades 9-12 which gathers self-reported data about students' physical, social, and emotional health. Given the MIYHS asks items of students about bullying and about their disability status, analyses of this relationship can be conducted. This paper summarizes the research literature, and then lays out the methodology, findings, and implications for future policy, practice and research.

Literature Review

Bullying and Students with Disabilities

One major concern for parents, educators and practitioners involved in the schools is whether disabled students are particularly at risk for being bullied. A common notion is that bullies pick on children who are “different” (Hoover and Stenhjem 2003; Flynt and Morton, 2007; Hergert 2004).

The available research indicates that disabled students are indeed more likely to be bullied. Much of this research, however, has been conducted outside the United States. Carter and Spencer (2006) reviewed eleven studies in this area that were published from 1989-2003. Eight were studies using students in European nations; the other three were based in the United States. This review concludes that students with visible and non-visible disabilities experienced bullying more than non-disabled peers, and disabled boys were particularly at risk. A 2011 qualitative review (Rose, Monda-Amaya, Espelage 2011) of bullying in special education found that disabled students educated in segregated or partially segregated settings "appear to be victimized more often than students with and without disabilities in inclusive settings." However, of the 32 studies included in this review, only 7 were based in the United States.

More recent European studies further support these findings. In a Swedish study, Holmberg (2010) reported that fourth graders in a Stockholm primary school who were diagnosed with attention-deficit disorder were significantly more likely to be bullied, than children not so diagnosed. Holmberg (2010) also reported that fourth graders who were diagnosed with attention-deficit disorder were significantly more to bully others, than were children not so diagnosed. A Swiss study reported that adolescents with physical disabilities or chronic health conditions were more likely to be victims of bullying, and when bullied, to be more depressed afterwards than students without disabilities (Pittet, Berchtold, Akre, Michaud, & Suris 2010). Most of the European studies are based on convenience samples of disabled youth, and compare such youth to another convenience sample of

non-disabled youth in a single school or district. For this reason, the sample likely does not reflect the larger population from which it is drawn.

Studies in the United States on this topic are less common than those reported in Europe, but since 2003, additional research has been conducted. For example, Twyman and her colleagues (2010) surveyed a convenience sample in one district of 100 children aged 8 to 17 years with identified "special health care needs" (i.e., learning disability, attention deficit disorder, autism spectrum disorder, behavioral or mental health disorder, or cystic fibrosis), and compared their bullying experiences to 73 children with no such diagnosis. Compared to the comparison group, children in the learning disabilities, autism spectrum disorders, and attention deficit disorder groups experienced significantly more bullying victimization than non-disabled children. In a study of middle school students in Roanoke, Virginia, Unnever and Cornell (2003) reported that students taking medication for hyperactivity were victimized at a higher rate than students not taking such medication (34% versus 22%). Conversely, however, White and Loeber (2008), in analyzing data from a longitudinal study of a cohort of youth in Pittsburgh, Pennsylvania, reported that placement in a special education program was not associated with being teased or disliked by peers.

The majority of this research indicates that students with disabilities are at greater risk for being bullied than students without disabilities. However, this research, particularly in the United States, is generally based on small studies conducted in a single school or district, using comparisons of convenience samples of disabled and non-disabled youth. While some analyses (Blake, Lund, Zhou, Kwok, and Benz 2012) have been conducted using national data on students with disabilities, their findings are limited by the lack of comparable data on a representative sample of non-disabled peers. This project improves upon these studies by examining rates of reported bullying for disabled versus non-disabled students using survey data representative of high school students from an entire state (Maine).

Research Questions

To respond to our stakeholders' interest in understanding the problem of the disabled youth and bullying, this project is designed to respond to four specific research questions:

1. Do high school students who have a disability report being bullied more than non-disabled students? What percentage of bullied students were disabled?
2. How do rates of reported bullying for disabled students vary by type of disability (physical/health disability and emotional/behavioral disability)?
3. How do rates of reported bullying for disabled and non-disabled students vary by location (on versus off school grounds) and method (in person versus electronic)?
4. How do rates of reported bullying vary within demographic categories such as gender, grade, race, and sexual orientation?

Methods

Data Sources

The MIYHS was a state effort to consolidate the existing surveys that were taking place at schools into one effort. The 2009 MIYHS was the first administration of the consolidated survey, and was administered to students in grades K-12, who attended school during administration in representative samples of schools across the state.

This project only examined the high school sample of the MIYHS, and so sampling procedures are only described for that population. All 134 public and quasi-public high schools (i.e., private schools with 60% of its students that are publicly funded) in Maine were invited to participate in the survey in 2009. Of those schools, 108 high schools eventually participated in the administration. Passive consent procedures were used: parents of high school students were asked to let the school know if they did not consent to their child's participation. Students could also opt out of the survey on the day of administration. The 108 participating high schools had a total enrollment of 51,121 students; 40,329 took the survey (all students in the participating schools were invited to participate in the survey). Thus, the MIYHS high school survey achieved an 82 percent *school* response rate and a 79 percent *student* response rate, for an overall response rate of 65 percent. Of the 40,329 students that took the survey, 10,680 were included in this study. The reasoning behind selecting this subset of survey participants is explained below.

Because the responding schools and students may have led to a survey sample that is different on various characteristics than students from the sampling frame of all high schools, the MIYHS high school data were also weighted for school and student non-response (see the limitations section and Appendix A for information on how the data was weighted). Full details of the weighting can be found in the Methodological Summary for MIYHS (Pan Atlantic SMS Group, 2010a).There are four modules (A, B, C, and D) in the MIYHS survey, each with a different combination of questions. Classes were randomly assigned one of the four modules (Pan Atlantic SMS Group, 2010b). For the purpose of this report, we selected only the students who received module D because this was the only module containing both the disability and the bullying questions. A total of 40,329 students took the survey and 10,680 students were assigned module D. Due to missing student data, the unweighted number of students in individual analyses may not equal 10,680.

Definitions of Bullying, Students with Disabilities and Control Variables

Definitions of bullying vary across researchers. For example, bullying has been defined by one group of researchers as "a form of aggression in which one or more children intentionally and repeatedly harass, intimidate or physically harm a victim" (Vreeman & Carroll, 2007). Olweus says a student is bullied when he or she is "exposed, repeatedly and over time, to negative actions on the part of one or more other students" (Olweus 1993, p. 9). Generally, most bullying definitions include intentional acts of harm, repetition, and some notion of a power imbalance between a victim and bully. For the purpose of this study, students who self-reported on the survey that, in the past 12 months, they had been bullied on school property, away from school property, or been electronically bullied such as through e-mail, chat rooms, instant messaging, websites or text messaging were identified as being bullied. It should be noted that the

MIYHS, like many other survey administrations, does not define bullying and allows students to self-define whether they have been a victim of it.

Defining students with disabilities is also challenging, as some research looks at particular disabilities such as physical disabilities while others examine emotional, behavioral or learning disabilities such as autism, attention deficit disorders, or learning disabilities. In their qualitative review of research on the relationship between bullying and disability in schools, Rose et al. (2011) note that the varying definitions of bullying make it difficult to compare results across studies. For the purpose of this study, the definition of a student with a disability is a student having a physical, long term health problem, emotional or behavioral problem, or a student who is limited in activities because of a disability or health problem (including physical health, emotional or learning problems) lasting or expecting to last more than six months. This is the definition used by the MIYHS.

Other demographic variables used in this analysis are defined by the MIYHS survey. For example, sexual orientation had four categories, heterosexual, gay/lesbian, bisexual, and unsure. Race and ethnicity had seven categories including American Indian/Alaskan Native, Asian, Black or African American, Hispanic, White, other races, multiple races. Grade level contains categories for grades 9, 10, 11, and 12 and gender is defined as male or female.

Analysis Plan

Descriptive statistical analyses were conducted to provide better understanding of the risk of bullying for students with and without disabilities. To provide this understanding, the project included a number of comparisons between disabled students and students who do not identify themselves as disabled. To test for differences between disabled and non-disabled students, Pearson's chi square tests were used, given that the independent and dependent variable were both nominal or categorical in nature, e.g., disabled/non-disabled and bullying/no bullying. A comparison between disabled and non-disabled students was judged to be statistically significant if it met the .05 (two-tailed) criteria.

Findings

We organize the results by each of the four research questions below:

Question 1: Do high school students who have a disability report being bullied more than non-disabled students?

Students with disabilities are more likely than their non-disabled peers to be bullied. Almost 50 percent of 9th-12th grade students who self-report a disability indicate they were bullied compared with approximately 28.5 percent of students who do not self-report such a disability (see Table 1). This result is statistically significant (chi= 352.8, p=.001).

Table 1: Percentage of students reporting that they were a victim of bullying, by disability status

Disability Status		%	Standard Error	Chi-Square Value
Disabled	Yes (n=2282)	49.90	(1.2)	352.8*
	No (n=7166)	28.50	(0.8)	
Long-term emotional or behavioral problems	Yes (n=1426)	56.00	(-1.6)	406.1*
	No (n=7497)	28.50	(-0.7)	
Physical or long-term health problems	Yes (n=1364))	48.10	(-1.7)	167.6*
	No (n=7470)	30.20	(-0.7)	

*Significant at the .001 level.

Question 2: How do rates of reported bullying for disabled students vary by type of disability (physical/health disability and emotional/behavioral disability)?

Students with certain disability types, at least according to these data, are more likely to be bullied than others. For example, 56 percent of students with long-term emotional or behavioral problems reported being the victim of bullying (also see Table 1). This was statistically significant at the .001 level (chi=406.01). The likelihood of being bullied was somewhat lower for students with physical or long-term health problems (48.1 percent) than for those with long-term emotional or behavioral disabilities, but was still statistically significant (Chi=167.6, p=.001).

Question 3: How do rates of reported bullying for disabled and non-disabled students vary by location (on versus off school grounds) and method (in person versus electronic)?

Students with disabilities are also more likely than their non-disabled peers to be bullied in a variety of settings and contexts. For example, Table 2 shows that a statistically significant and higher percentage of students with disabilities report being bullied compared to their classmates on school property (33.6 vs. 18.0 percent, chi=237.9, p=.001) and away from school property (30.8 vs. 13.1 percent, chi=366.4, p=.001).

Table 2: Percentage of students reporting that they were a victim of bullying, by bullying characteristics and disability status, 2008-2009 school year

Bullying Characteristics	% Disabled	Standard Error	% Non Disabled	Standard Error	Chi Square Value
Bullied on school property (n=2007)	33.60	(1.2)	18.00	(0.6)	237.9*
Bullied away from school property (n=1586)	30.80	(1.2)	13.10	(0.6)	366.4*
Bullied via electronic means (n=1768)	31.40	(1.2)	15.90	(0.6)	252.9*

*Significant at the .001 level.

Students were also asked about cyber bullying. Table 2 also shows that students with disabilities report being bullied more often than their classmates via electronic means (31.4 vs. 15.9 percent). This difference was also statistically significant (Chi=252.9, p. = .001).

Question 4: Within demographic categories such as gender, grade, race, and sexual orientation, what percentage of bullied students were disabled? (Note: To examine this question, only students who reported being bullied were included in the analysis.)

When investigating student-level characteristics associated with bullying, differences in the percentage of disabled students being bullied emerge within race/ethnicity and sexual orientation categories, but not by gender or grade-level. Table 3 indicates that there was no statistically significant difference in the percentages of male and female students with disabilities who were bullied.

Table 3: Percentage of bullied students with disabilities, by student characteristics, 2008-2009 school year

Student Characteristics		%	Standard Error	Chi-Square Value
Gender	Male (n=1442)	34.30	(1.6)	0.948
	Female (n=1631)	36.00	(1.6)	
Grade Level	Grade 9 (n=941)	33.70	(1.8)	2.4
	Grade 10 (n=889)	35.30	(2.4)	
	Grade 11 (n=692)	35.00	(2.2)	
	Grade 12 (n=517)	37.90	(2.5)	
Race /Ethnicity	American Indian or Alaska Native	30.90	(5.1)	43.8*
	Asian	32.20	(7.1)	
	Black or African American	30.1	(5.6)	
	Hispanic	30.10	(5.2)	
	White	51.40	(1.2)	
	Other Races	33.00	(13.5)	
	Multiple Races	52.20	(5.3)	
Sexual Orientation	Heterosexual	30.90	(5.1)	167.0*
	Gay or Lesbian	32.20	(7.1)	
	Bisexual	30.1	(5.6)	
	Not Sure	30.10	(5.2)	

*Significant at the .001 level.
Note: Students may fall in more than one category; results do not always add up to 100%. The analyses were done using weighted data; sample sizes reported in the tables represent the un-weighted totals of the students responding to the survey.

Table 3 indicates that disabled students' grade-level is also not associated with bullying. The prevalence of bullying in grades 9-12 ranges from 34-38%, and these differences between grade levels were not statistically significant.

However, race/ethnicity does seem to be related to incidents of bullying. Hispanic students with disabilities, disabled students who reported their race as "Other," and those who reported being of multiple races were significantly more likely than their peers in other race/ethnicity categories to be bullied (see Table 3). It should be noted that some of the sample sizes in

specific cells are very small, and so the results need to be interpreted with caution. The differences across the different ethnic groups, however, is statistically significant at the .001 level (chi=43.8).

Finally, Table 3 also shows that heterosexual students seem less likely to be bullied than disabled students who report being gay/lesbian, bisexual, or not sure. Students with disabilities who identify as bisexual or who are "not sure" of their sexual orientation reported higher rates of bullying than students with disabilities who identify as gay or lesbian. This difference was statistically significant at the .001 level (Chi=167.0).

Limitations

The proposed data analyses are limited to the variables available in the data set. The bullying items do not specify the types of bullying behavior that students were victimized by (e.g., physical bullying such as pushing and shoving). In addition, the disability items do not provide further data on the specific types of disabilities--beyond broad categories--that students may have (e.g., autism, ADHD). This, however, is a very common structure for state and national surveys such as the YRBS (U.S. Centers for Disease Control, 2010). Comparisons between state or district and national results can be found online at http://www.cdc.gov/HealthyYouth/yrbs/state_district_comparisons.htm).

A second limitation is that the MIYHS represents responses by students in grades 9-12 to a self-report survey. As a result, this analysis relies on student reports of their own classification as a victim of bullying and whether they self-identify as having a disability. Although self-report is considered an improvement over official reports because bullying victims are often reluctant to report victimization to school officials (Petrosino, Guckenburg, DeVoe, & Hanson 2010), self-reports are susceptible to other biases. It should also be noted that students were not asked directly about learning disabilities when asked about their disability status. Ideally, other measures related to bullying status and disability would be derived from independent observation or other means; the MIYHS data are limited, however, to the self-report by a single student.

Another limitation to note is that although the data was weighted for school and student non-response, disability status was not one of the variables used to weight the data. Therefore we can't definitively state that this represents all disabled students in the state.

Discussion

As far as we know, the results of the analyses presented here provide the first examination of the relationship between bullying and disability using a statewide sample. Three major findings emerged in the course of this study.

First, findings from national and international research that indicate that students with disabilities are at risk for bullying were supported: high-school students with disabilities in Maine are more likely than their non-disabled peers to be bullied. While students with either physical or emotional/behavioral disabilities were at-risk for being bullied, students with emotional/behavioral disabilities were more likely to be bullied than students with physical disabilities.

Second, this increased risk existed across location and type of bullying. Students with disabilities were more likely to experience bullying on or off school grounds or via electronic means (e.g., "cyber-bullying").

Third, specific groups of students with disabilities; Hispanic students, students of "other" races, students of multiple races; and students who identify as gay, lesbian, bisexual or who are not sure of their sexual orientation are even more likely to be victimized by bullying than other disabled students.

The information gleaned from the MIYHS data set about the extent of the bullying problem in Maine can help policymakers and practitioners target their support and interventions to the most vulnerable students and the contexts in which bullying is most likely to take place. Any efforts undertaken in Maine to combat bullying should take into account that students with disabilities are particularly at-risk as well as consider the specific student-level factors that seem to be related to increased reports of bullying.

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Appendix A

Sampling and Weighting Procedures

This study used data from MIYHS that was weighted to account for student and school non-response. The purpose of weighting the data is to provide as accurate a picture as possible of high school students in Maine. Weights ("Finalwt_ABCD") are used in the MIYHS to take non-response into account to provide more accurate estimates of population parameters.

Also, the MIYHS is not a simple random sample, which many common statistical procedures assume. Instead, the survey is based upon a stratified, multi-stage cluster sample design. The complex sampling design utilized required the use of sample weights to derive accurate point estimates and adjustments for clustering and stratification to compute standard errors. To estimate statistics, standard errors, and significance tests, the Taylor series linearization method using the primary sampling units and strata variables available in the dataset was implemented. The Taylor series linearization approach is the default method used in the survey commands in Stata 11 (the analysis software used by this project) used to handle complex survey data (StataCorp 2009).

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